Bimsara Pathiraja

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RESEARCH INTERESTS

Multi-Modal Generative Models, Image Editing, World Models, Reasoning, Autonomous Driving

PUBLICATIONS

Multiclass Confidence and Localization Calibration for Object Detection. *Bimsara Pathiraja, Malitha Gunawardhana, Muhammad Haris Khan.* CVPR main conference, 2023. [[paper](#)]

Dual Caption Preference Optimization for Diffusion Model. *Amir Seidi, Yiran Lawrence Luo, Agneet Chatterjee, Shamanthak Hedge, Bimsara Pathiraja, Yezhou Yang, Chitta Baral.* under review. [[paper](#)]

Investigating the Shortcomings of LLMs in Step-by-Step Legal Reasoning. *Venkatesh Mishra*, Bimsara Pathiraja*, Mihir Parmar, Sat Chidananda, Jayanth Srinivasa, Gaowen Liu, Ali Payani, Chitta Baral.* under review.

ExpressivityArena: Can LLMs Express Information Implicitly? *Joshua Tint, Som Sagar, Bimsara Pathiraja, Aditya Taparia, Kelly Raines, Bimsara Pathiraja, Caleb Liu, Ransalu Senanayake.* NeurIPS Workshop on Behavioral ML, 2024. [[paper](#)]

Fairness in Autonomous Driving: Towards Understanding Confounding Factors in Object Detection under Challenging Weather. *Bimsara Pathiraja, Caleb Liu, Ransalu Senanayake.* CVPR Workshop on Data-Driven Autonomous Driving Simulation. [[paper](#)]

Class-aware Attention for Multimodal Trajectory Prediction. *Bimsara Pathiraja, Shehan Munasinghe, Malshan Ranawella, Maleesha De Silva, Ranga Rodrigo, Peshala Jayasekara.* [[paper](#)]

EXPERIENCE

Arizona State University AZ, USA
Graduate Teaching Assistant *August 2024 – Present*
- Courses: Software Security and Principles of Programming Languages

Mentoring *August 2023 – August 2024*
- Caleb Liu – Hamilton High School, Chandler, AZ on Carla simulator and domain adaptation in object detection.

Graduate Research Assistant *August 2023 – August 2024*
- Advisor - Ransalu Senanayake, LENS Lab
- Worked on investigating fairness in autonomous driving under confounding factors and debiasing t2i diffusion models

Mohamed bin Zayed University of Artificial Intelligence Abu Dhabi, UAE
Research Assistant *August 2022 – August 2023*
- Advisor – Dr. Muhammad Haris Khan, Computer Vision Department
- Worked on improving network calibration for object detection leading to publication at CVPR 2023.

WSO2 Sri Lanka
Software Engineer *May 2022 – August 2022*
- Resolved and deployed multiple bugs in the language server of the new [Ballerina](#) programming language using Java.
- Used Ballerina and GitHub workflows to generate up-to-date active proposals for the Ballerina [webpage](#).

EDUCATION

Arizona State University AZ, USA
PhD in Computer Science *August 2023 – Present*
Advisor – Chitta Baral
Graduate GPA – 4.00

University of Moratuwa Sri Lanka
BSc (Hons) Eng. - Electronic and Telecommunication Engineering – First Class *August 2017 – July 2022*

AWARDS AND HONORS

Fulton Fellow Award, ASU	2023
SCAI Conference Award, ASU	2024
Sri Lankan Internet of Things Competition – Open Category, 2nd place	2019

SKILLS

Pytorch | TensorFlow | Python | C | MATLAB | Unity | Linux | ROS | FPGA | Git | Carla |